

TITLE

GENES ENCODING CAROTENOID COMPOUNDS

ABSTRACT OF THE DISCLOSURE

5 A carotenogenic biosynthetic gene cluster has been isolated from
Pantaea stewartii strain DC413, wherein the genetic organization of the
cluster is *crtE-idi-crtX-crtY-crtI-crtB-crtZ*. The genes contained within this
cluster encode geranylgeranyl pyrophosphate (GGPP) synthetase (CrtE),
isopentenyl pyrophosphate isomerase (Idi), zeaxanthin glucosyl
transferase (CrtX), lycopene cyclase (CrtY), phytoene desaturase (CrtI),
10 phytoene synthase (CrtB), and β -carotene hydroxylase (CrtZ). The gene
cluster, genes and their products are useful for the conversion of farnesyl
pyrophosphate to carotenoids. Vectors containing those DNA segments,
host cells containing the vectors and methods for producing those
enzymes by recombinant DNA technology in transformed host organisms
15 are disclosed.

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